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Economic Commission for Europe**Inland Transport Committee****Working Party on the Transport of Dangerous Goods****Joint Meeting of Experts on the Regulations annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) (ADN Safety Committee)****Thirty-second session**

Geneva, 22–26 January 2018

Item 5 (b) of the provisional agenda

**Proposals for amendments to the Regulations annexed to ADN:
other proposals****Revision of adopted amendments: Degassing of Cargo Tanks****Transmitted by the Governments of Germany and the Netherlands^{*,**,***}***Summary*

Executive summary:	During the thirty-first session of the ADN Safety Committee adopted the amendments of the informal working group on Degassing of Cargo Tanks. This document contains a few (editorial) revisions of the adopted amendments and one new amendment.
Action to be taken:	The Safety Committee is invited to adopt the amendments which can be found in the annexes.
Related documents:	Informal document INF.18 of the twenty-fifth session ECE/TRANS/WP.15/AC.2/52 (Paragraphs 57 - 59) Informal document INF.19 of the twenty-sixth session

* Distributed in German by the Central Commission for the Navigation of the Rhine in document CCNR-ZKR/ADN/WP.15/AC.2/2018/13.

** In accordance with the programme of work of the Inland Transport Committee for 2017-2018 (ECE/TRANS/WP.15/237, annex V (9.3.)).

*** Annex III is being circulated in the language of submission only.

ECE/TRANS/WP.15/AC.2/54 (Paragraph 62)
ECE/TRANS/WP.15/AC.2/2015/29
ECE/TRANS/WP.15/AC.2/56 (Paragraphs 70 - 74)
ECE/TRANS/WP.15/AC.2/2016/25
ECE/TRANS/WP.15/AC.2/58 (Paragraphs 73 - 74)
ECE/TRANS/WP.15/AC.2/2016/49
Informal document INF.8 of the twenty-ninth session
Informal document INF.15 of the twenty-ninth session
ECE/TRANS/WP.15/AC.2/60 (Paragraphs 53 - 61)
ECE/TRANS/WP.15/AC.2/2017/47
ECE/TRANS/WP.15/AC.2/64 (Paragraph 70)
ECE/TRANS/WP.15/AC.2/64/Add.1

Introduction

1. At its thirty-first session, the ADN Safety Committee adopted the proposed amendments of the informal working group on Degassing of Cargo Tanks which can be found in ECE/TRANS/WP.15/AC.2/64/Add.1. After the meeting, the governments of Germany and the Netherlands noted that some of the amendments to the Regulations annexed to ADN needed revision or rewording. They also noted that the informal working group had not proposed to amend 3.2.3.1., column 20, 33, (j), 1, which would be in line with the approach of the informal working group (and which would align the different language versions of ADN).

I. Amendments

2. On section 1.2.1, Germany and the Netherlands propose to revise the amendment on the reception facility, to bring the definition more in line with the adopted text in CDNI. The definition of toximeter is revised in line with the comments made by the representative of the European Commission. During the adoption of the report, these useful comments were not processed in the final text.

3. Most of the proposed amendments on Chapter 7 concern the translation of the original proposals by the informal working group, or are of an editorial nature (for instance, replace “gas concentration” by “concentration of flammable gases and vapours”). In the last paragraph of subsection 7.2.3.7.2.3 it is proposed that the requirements for the explosion group/subgroup of the flame arrester, only apply to the piping on board. This is in line with the amendments proposed by the informal working group on Substances and adopted by the ADN Safety Committee at its thirty-first session.

4. The amendment on section 8.6.4 has been editorially revised as well. Germany and the Netherlands propose to delete the first sentence of the explanation of question 2 because this explanation was not in line with the question in the checklist degassing to reception facilities, nor with the applicable requirements in subsection 7.2.3.7.2.

5. Lastly, Germany and the Netherlands propose to amend subsection 3.2.3.1, as introduced in paragraph 1.

II. Conclusion

6. The ADN Safety Committee is invited to discuss the amendments proposed in the Annexes and to take action as it deems appropriate.

Annex I

Revised proposed amendments to the ADN 2017

~~The cancelled text is struck through, **the additional text is bold and underlined**, compared to the adopted amendments which can be found in ECE/TRANS/WP.15/AC.2/64/Add.1~~

1.2.1 Definitions

1.2.1 *Reception facility* means a **stationary or mobile** facility for receiving gases and vapours during degassing of empty or unloaded cargo tanks and piping for loading and unloading

Toximeter means a (trans)portable device allowing measuring of any significant concentration of toxic gases and vapours. The device has to comply with standard EN 45544-1:2015, EN 45544-2:2015, EN 45544-3:2015 and EN 45544-4:2016 or with standard ISO 17621:2015.

If this device is used in explosion hazardous areas it shall be in addition suitable to be used in the respective zone and it has to be proven that the applicable requirements are fulfilled (e.g. conformity assessment procedure according to Directive 2014/34/EU¹, or **to** ECE/TRADE/391² or at least equivalent).

This device shall be so designed that such measurements are possible without the necessity of entering the spaces to be checked.

7.2.3 General service requirements

7.2.3.1.6 Entry into empty cargo tanks, the residual cargo tanks, the cargo pump-rooms below deck, cofferdams, double-hull spaces, double bottoms, hold spaces or other confined spaces is only permitted if:

- The concentration of flammable gases and vapours given off by the cargo in the cargo tanks, the residual cargo tanks, the cargo pump-rooms below deck, cofferdams, double-hull spaces, double bottoms, hold spaces or other confined spaces, is below 10 % of the LEL, the concentration of toxic gases and vapours given off by the cargo is below national accepted exposure levels, and the percentage of oxygen is between 20 and 23.5 vol %,

or

- The concentration of flammable gases and vapours given off by the cargo in the cargo tanks, the residual cargo tank, the cargo pump-rooms below deck, cofferdams, double-hull spaces, double bottoms, hold spaces or other confined spaces, is below 10 % of the LEL, and the person entering the spaces wears a self-contained breathing apparatus and other necessary protective and rescue equipment, and is secured by a line. Entry into these spaces is only permitted if this operation is supervised by a second person for

¹ **Official** Journal of the European Communities **Union** No. L ~~2396~~ of ~~26~~ ~~March~~ **February** 2014, p. 309-~~356~~.

² Common Regulatory Framework for Equipment Used in Environments with an Explosive Atmosphere, United Nations 2011.

whom the same equipment is readily at hand. Another two persons capable of giving assistance in an emergency shall be on the vessel within calling distance. If a rescue winch has been installed, only one other person is sufficient.

In case of emergency or mechanical problems, it is allowed to enter the tank when the gas-concentration **of flammable gases and vapours** given off by cargo is between 10 and 50% of the LEL. The breathing apparatus (self-contained) in use has to be designed in such a way that the causing of sparks is avoided.

In deviation of 1.1.4.6, more stringent national legislation on the entry into cargo tanks shall take precedence over the ADN.

- 7.2.3.7.1.3 Degassing of empty or unloaded cargo tanks having contained dangerous goods other than those referred to under 7.2.3.7.1.1, when the ~~gas~~ concentration **of flammable gases and vapours** given off by the cargo is 10% of the LEL or above, may be carried out while the vessel is underway or at locations approved by the competent authority by means of suitable venting equipment with the tank lids closed and by leading the gas/air mixtures through flame-arresters capable of withstanding steady burning (Explosion group / subgroup according to column (16) of Table C, Chapter 3.2). The ~~gas~~ concentration **of flammable gases and vapours** in the vented mixture at the outlet shall be less than 50 % of the LEL. The suitable venting equipment may be used for degassing by extraction only when a flame-arrester is fitted immediately before the ventilation fan on the extraction side (Explosion group / subgroup according to column (16) of Table C, Chapter 3.2). The ~~gas~~ concentration **of flammable gases and vapours** shall be measured once each hour during the two first hours after the beginning of the degassing operation by forced ventilation or by extraction, by an expert referred to in 8.2.1.2. The results of these measurements shall be recorded in writing.

Degassing is, however, prohibited within the area of locks including their lay-bys, under bridges or within densely populated areas.

Degassing of empty or unloaded cargo tanks having contained dangerous goods other than those referred to in 7.2.3.7.1.1, when the concentration of gases and vapours given off by the cargo is below 10 % of the LEL, is allowed, and also additional openings of the cargo tank are allowed to be opened as long as the crew is not exposed to a concentration of gases and vapours which exceeds national accepted exposure levels. Also, there is no obligation to use a flame arrester.

It is prohibited within the area of locks, including their lay-bys, under bridges or within densely populated areas.

- 7.2.3.7.2.3 Degassing to reception facilities may be carried out by using the piping for loading and unloading or the venting piping to remove the gases and vapours from the cargo tanks while using the other piping respectively to prevent exceedance of the maximum permissible overpressure or vacuum of the cargo tanks.

Piping shall be part of a closed system or, if used to prevent exceedance of the maximum permissible vacuum in the cargo tanks, be equipped with a permanently installed or portable spring-loaded low-pressure valve, with a flame-arrester (Explosion group / subgroup according to column (16) of

Table C₁ of Chapter 3.2) if explosion protection is required (column (17) of Table C₁ of Chapter 3.2). This low-pressure valve shall be so installed that under normal working conditions the vacuum valve is not activated. A permanently installed valve or the opening to which a portable valve is connected, must remain closed with a blind flange when the vessel is not degassing to a reception facility.

All piping connected between the degassing vessel and the reception facility shall be equipped with an appropriate flame arrester (**Piping on board:** Explosion group / subgroup according to column (16) of Table C₁ of Chapter 3.2) if explosion protection is required (column (17) of Table C₁ of Chapter 3.2).

- 7.2.3.7.2.4 It shall be possible to interrupt degassing operations by means of switches installed at two locations on the vessel (fore and aft) and at two locations at the reception facility (directly at the access to the vessel and at the location from where the reception facility is operated). Interruption of degassing shall be effected by the means of a quick closing valve which shall be directly fitted in the connection between the degassing vessel and the reception facility. The system of disconnection shall be designed in accordance with the closed circuit principle and may be integrated in the **ESD emergency shutdown** system of the cargo pumps and overfill protections prescribed in 9.3.1.21.5, 9.3.2.21.5 and 9.3.3.21.5.

Degassing operations shall be interrupted during a thunderstorm.

- 8.6 Documents

8.6.4 Checklist degassing to reception facilities

1

ADN Checklist

concerning the observance of safety provisions and the implementation of the necessary measures for degassing to reception facilities

– Particulars of vessel

..... No.
 (name of vessel) (official number)

 (vessel type)

– Particulars of reception facility

.....
 (reception facility) (place)

 (date) (time)

Reception facility approved according CDNI Yes No

– Particulars of the previous cargo to be degassed before degassing as indicated in the transport document

Quantity m ³	Proper shipping name**	UN Number or Identification number	Dangers*	Packing Group
.....
.....
.....

* Dangers indicated in column (5) of Table C, as relevant (as mentioned in the transport document in accordance with 5.4.1.1.2 (c)).

** The proper shipping name given in column (2) of Table C of Chapter 3.2, supplemented, when applicable, by the technical name in parenthesis.

2		
Degassing rate		
Proper shipping name**	Cargo tank number	agreed rate of degassing
		rate m ³ /h
.....
.....
.....

Questions to the master or the person mandated by him and the person in charge at the reception facility

Degassing may only be started after all questions on the checklist have been checked off by “X”, i.e. answered with YES and the list has been signed by both persons.

Non-applicable questions have to be deleted.

If not all questions can be answered with YES, degassing is only allowed with consent of the competent authority.

** The proper shipping name given in column (2) of Table C of Chapter 3.2, supplemented, when applicable, by the technical name in parenthesis.

		vessel	3 reception facility
1.	Is the vessel well moored in view of local circumstances?	O	–
2.	Are the pipings for degassing between vessel and reception facility in satisfactory condition?	–	O
	Are they correctly connected and are appropriate flame arresters fitted in the piping between the vessel and the reception facility?	O	O
3.	Are all flanges of the connections of the piping for loading and unloading and of the venting piping not in use, correctly blanked off?	O	O
4.	Is continuous and suitable supervision of degassing ensured for the whole period of the operation?	O	O
5.	Is communication between vessel and reception facility ensured?	O	O
6.1	Is it ensured that the reception facility is such that the pressure at the connecting point cannot exceed the opening pressure of the high-velocity vent valves (pressure at connecting point __ kPa)?	–	O*
6.2	Is the air inlet part of a closed system or equipped with a spring-loaded low-pressure valve?	–	O**
6.3	When anti-explosion protection is required in Chapter 3.2, Table C, column (17) does the reception facility ensure that its piping is such that the vessel is protected against detonations and passage of flames from the reception facility.	–	O
7.	Is it known what actions are to be taken in the event of an “Emergency-stop” and an “Alarm”?	O	O

* Not applicable if vacuum is used to generate air flows.

** Only applicable if vacuum is used to generate air flows.

		vessel	reception facility 4
8.	<p>Check on the most important operational requirements:</p> <ul style="list-style-type: none"> – Are the required fire extinguishing systems and appliances operational? – Have all valves and other closing devices been checked for correct open or closed position? – Has smoking been generally prohibited? – Are the flame operated heating applications on board turned off? – Is the voltage cut off from the radar installations? – Is all electrical equipment marked red switched off? – Are all windows and doors closed? 	<p>O</p> <p>O</p> <p>O</p> <p>O</p> <p>O</p> <p>O</p> <p>O</p>	<p>O</p> <p>O</p> <p>O</p> <p>–</p> <p>–</p> <p>–</p> <p>–</p>
9.1	Has the starting working pressure of the vessel's piping been adjusted to the permissible working pressure of the reception facility? (agreed pressure ___ kPa)	O	–
9.2	Has the starting working pressure of the reception facility piping been adjusted to the permissible working pressure of the on-board installation? (agreed pressure ___ kPa)	–	O
10.	Are the cargo tank hatches and cargo tank inspection, gauging and sampling openings closed or protected by flame arresters in good condition?	O	–
<p>Checked, filled in and signed</p> <p>for the vessel:</p> <p>.....</p> <p>(name in capital letters)</p> <p>.....</p> <p>(signature)</p>		<p>for the reception facility:</p> <p>.....</p> <p>(name in capital letters)</p> <p>.....</p> <p>(signature)</p>	

Explanation

Question 1

“Well moored” means that the vessel is fastened to the pier or the reception facility in such a way that, without intervention of a third person, movements of the vessel in any direction that could hamper the degassing operation will be prevented. Established or predictable variations of the water-level at that location and special factors have to be taken into account.

Question 2

~~A valid inspection certificate for the hose assemblies must be available on board.~~ The material of the piping must be able to withstand the expected rates and be suitable for degassing. The piping between vessel and reception facility must be placed so that it cannot be damaged by ordinary movements of the vessel during the degassing process or by variations of the water.

Question 4

Degassing must be supervised on board and at the reception facility so that dangers which may occur in the vicinity of the piping between vessel and reception facility can be recognized immediately. When supervision is effected by additional technical means it must be agreed between the reception facility and the vessel how it is to be ensured.

Question 5

For a safe degassing operation good communications between vessel and shore are required. For this purpose telephone and radio equipment may be used only if of an explosion protected type and located within reach of the supervisor.

Question 7

Before the start of the degassing operation the representative of the reception facility and the master or the person mandated by him must agree on the applicable procedure. The specific properties of the substances to be degassed have to be taken into account.

Annex II

New proposed amendments to the ADN 2017

The cancelled text is struck through, **the additional text is bold and underlined**

3.2.3 Table C

3.2.3.1 Column 20, 33 (j) 1: After unloading of the previous cargo, the cargo tank must be ~~degassed~~ **made gasfree** and inspected for any remaining traces, carbon residues and rust.

Annex III

German translation of amendments

- 7.1.3 *General service requirements*
- 7.1.3.1.4 Replace "...brennbaren oder..." by "...entzündbaren und/oder...".
- 7.1.3.1.5 Replace "...nationalen Expositionsgrenzwerten..." by "...national zulässigen Expositionsgrenzwerten...".
- 7.1.3.1.7 Replace "...nationalen Expositionsgrenzwerten..." by "...national zulässigen Expositionsgrenzwerten...".
- 7.1.4 *Additional requirements concerning, loading, carriage, unloading and other handling of the cargo*
- 7.1.4.12.2 Replace "...Dämpfen die Gaskonzentration unter 10%..." by "...Dämpfen deren Konzentration unter 10%..." and "...national anerkannten Expositionsgrenzwerten..." by "national zulässigen Expositionsgrenzwerten...".
- 7.2.3 *General service requirements*
- 7.2.3.1.5 Replace "...national anerkannten Expositionsgrenzwerte..." by "national zulässigen Expositionsgrenzwerten...".
- 7.2.3.1.6 Translate "...national accepted exposure levels..." with "...national zulässigen Expositionsgrenzwerten...".
- 7.2.3.7.1.2 Replace "...national anerkannten Expositionsgrenzwerte..." by "national zulässigen Expositionsgrenzwerten...".
- 7.2.3.7.1.3 Translate "...national accepted exposure levels..." with "...national zulässigen Expositionsgrenzwerten...".
- 7.2.3.7.1.4 Replace "...national anerkannten Expositionsgrenzwerte..." by "national zulässigen Expositionsgrenzwerten...".
- 7.2.3.7.1.5 Replace "...brennbaren..." by "...entzündbaren..." and "...national anerkannten Expositionsgrenzwerte..." by "national zulässigen Expositionsgrenzwerten...".
- 7.2.3.7.1.6 Replace "...zu entgasen." by "...gasfrei zu machen."
- 7.2.3.7.2.3 Remove the word "...gerade...".
- 7.2.3.7.2.5 Replace "...festgestellt wird, dass weder die Konzentration an brennbaren Gasen innerhalb der Ladetanks über..." by "...festgestellt wird, dass innerhalb des Ladetanks weder die Konzentration an entzündbaren Gasen über..." and "...national anerkannten Expositionsgrenzwerten..." by "national zulässigen Expositionsgrenzwerten...".
- 7.2.3.7.2.6 Replace "...zu entgasen." by "...gasfrei zu machen."
- 7.2.5 *Additional requirements concerning the operation of vessels*
- 7.2.5.0.1 Replace "...brennbaren..." by "...entzündbaren..." and "...national anerkannten Expositionsgrenzwerten..." by "national zulässigen Expositionsgrenzwerten...".

8.6 *Documents*

- 8.6.4 Replace “Ist der Ausgangsdruck...” by “Ist der Anfangsdruck...” in questions 9.1 and 9.2
-